Project Baseline Summary Report

Data Source: **EM CDB**

Report Number: **GEN-01b**

Operations/Field Office: **Chicago**

Print Date: **3/9/2000**

Site Summary Level: **Princeton Plasma Physics Laboratory**

HQ ID: **0027**

Project **CH-PPPLRA / PPPL Remedial Actions**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: This project covers all aspects of the Environmental Restoration program at PPPL. It includes the investigation and remediation of soil and ground water contamination at the C & D sites of Princeton University's James Forrestal Campus. DOE is responsible for the investigation and remediation of C & D sites. Current investigation and remediation activities focus on identified Areas of Potential Environmental Concern (APECs) of the site where soil or ground water contains contaminants above the NJDEP cleanup criteria. The remedial strategy for this project utilizes expedited removal actions in those APECs where soil contaminants are above the NJDEP cleanup criteria.

This activity also includes the PPPL technical personnel and program management for all EM-40 activities at PPPL. These personnel are responsible for the technical, financial, regulatory and administrative issues related to soil and ground water remediation. They manage the preparation and implementation of work plans, prepare and review reports, manage and oversee subcontractors, negotiate with the NJDEP, and provide technical and administrative support to DOE.

Technical Approach: This project involves the characterization, remediation, and monitoring of ground water, soil, and sediment contamination at PPPL. Characterization includes the sampling and analysis of ground water, soil and sediment. Lateral and vertical delineation of the extent of contamination is required by NJDEP (NJAC 7:26E).

The accelerated remedial strategy adopted at PPPL focuses on expedited removal actions when and where sources of contamination are identified. Since the ground water contamination documented to date is being captured by the existing building dewatering sumps, there is little potential for off-site migration. NJDEP has indicated that the ground water contamination documented to-date poses a low public health risk and they may be amenable to a "natural remediation proposal" with no active ground-water remediation.

During the initial Remedial Investigation sampling, which was conducted in 1994 and 1995, soil in seven (7) Areas of Potential Environmental Concern (APECs) were sampled and analyzed for potential contaminants. Analytical results were compared to the most-stringent NJDEP Soil Cleanup Criteria applicable. Only two (2) of the seven (7) APECs have contaminants above the applicable NJDEP Soil Cleanup Criteria. With the agreement of NJDEP, these APECs were remediated in FY1996 through expedited removal actions. The removal actions involved the excavation and off-site treatment/disposal of contaminated soil and sediments. Effectiveness of the removal actions was documented with post-excavation sampling.

Ground water sampling results indicate that VOCs are present at concentrations above the NJ Ground Water Quality Standards beneath approximately 60% of the site in the shallow and intermediate ground water zones. Pumping of the building dewatering sumps in the D-site Motor Generator Building, the TFTR complex, and the Lab Office Building (LOB) has created radial ground water flow toward those sumps that captures most of the shallow and intermediate ground water beneath the site. The Supplemental Ground Water Investigation, conducted in FY1997, identified a new APEC associated with the Former Annex Building area. This area was characterized in FY 1998. No active ground water remediation is required. Rather, natural attenuation, augmented by the on-site dewatering sumps, will be utilized for remediation.

Project Status in FY 2006:

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Project Description Narratives

The remedial portion of this project was planned for completion in FY 1998 with characterization of the Former Annex Building area. Ground water monitoring is anticipated through 2004 since it will likely be required by NJDEP to support the aquifer Classification Exception Area (CEA) designation. No active ground water remediation is included in this scenario.

Post-2006 Project Scope:

All functions should be complete by FY 2004. It is anticipated that monitoring functions will be transferred to the Office of Science in FY 2001.

Project End State

The project end state envisions soil contaminant levels below the applicable regulatory limit. Soil conditions will be documented in accordance with NJAC 7:26E. Ground water results will be compared to the New Jersey Ground Water Quality Standards (NJAC 7:9-6). The project end state will likely include long-term ground water monitoring in support of the aquifer Classification Exception Area (CEA) designation where the Ground Water Quality Standards are not met. The CEA will address contaminant migration and degradation, and projected ground water resource uses as part of the long term monitoring requirement. The operation and maintenance of active ground water treatment systems is not anticipated.

Cost Baseline Comments:

The cost baseline presented herein reflects the Baseline PBS scenario for PPPL. It assumes that active ground water remediation is not required. FY 2001 EM funding is pending transfer to Office of Science.

Safety & Health Hazards:

Potential downgradient groundwater receptors include potable and non potable water supply wells. The nearest downgrdient supply well is less than one mile from the site boundary. Other potential downgradient receptors include municipal well field approximately 15 miles from the site boundary. There is slightly increased risk to the workers during sampling and remediation.

Safety & Health Work Performance:

The designation of "Aquifer Classification Exception Area" by NJDEP restricts the use of groundwater to non-potable supplies where exposure potential is minimal. It may completely prohibit the use of groundwater for some period of time. This designation should be maintained until a natural degradation reduces contaminant concentrations below the applicable groundwater quality standards.

The resources necessary to perform safety and health functions are funded by the Laboratory`s Institutional Site (OPEX) tax. These resources are NOT funded directly by EM-30.

PBS Comments:

Supplemental ground water sampling in the vicinity of the CAS/RESA buildings has detected VOCs exceeding the NJGWQS (NJAC 7:9-6). These contaminants may be emanating from the location of a former storage building used by PPPL (the Former Annex Building a

Baseline Validation Narrative:

Baseline change proposal (BCP) which rebaselined the program was approved by DOE-CH-EPG. A subsequent BCP was created during the latter part

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Project Description Narratives

of FY 1998 to finalize remaining monitoring costs.

General PBS Information

Project Validated? Yes **Date Validated:** 8/29/1996

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/7/1999

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
N	N	N	N	N	Y	N	N

Project Identification Information

DOE Project Manager: Jeff Makiel

DOE Project Manager Phone Number: 609-243-3721

DOE Project Manager Fax Number: 609-243-2032

DOE Project Manager e-mail address: jmakiel@pppl.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	2,811	0	2,811	459	459	555	555	351	273	282	289	297	305	0	0
PBS Baseline (constant 1999 dollars)	2,699	0	2,699	459	459	555	555	351	266	267	267	267	267	0	0

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Project **CH-PPPLRA / PPPL Remedial Actions**

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS EM Baseline (current year dollars)	1,920	0	1,920	459	459	555	555	351	273	282	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	1,898	0	1,898	459	459	555	555	351	266	267	0	0	0	0	0

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category:	Other													
Office of Science							100	100	100	100	100	100	100	100

		2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category:	Other													
Office of Science		100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

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Project **CH-PPPLRA / PPPL Remedial Actions**

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/1999

Current Projected End Date of Project: 9/30/1999

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	1,535	**Actual 1997 Cost:**	459	**Actual 1998 Cost:**	555
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	521	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			14
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	535				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	349	Transfer of S&M functions is planned for FY 2001 rather than FY 1999.
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	884	

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Project **CH-PPPLRA / PPPL Remedial Actions**

Project Reconciliation

Additional Amount to Reconcile (+):	0
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**884**

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
LT S&M Completion	CH-PL-002		9/1/2004								
Transfer Functions to Office of Science	CH-PL-001		10/1/2001								
Remedial Actions Complete	CH-PL-02		9/30/1999								
Project Start	CH-PL-04		10/1/1996								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
LT S&M Completion	CH-PL-002										
Transfer Functions to Office of Science	CH-PL-001										
Remedial Actions Complete	CH-PL-02				Y						
Project Start	CH-PL-04			Y							

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 20(
RS														
Assess.	NR	8.00	0.00	8.00				8.00						
RS														
Cleanup	NR	8.00	0.00	8.00				8.00						

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
RS Assess.	NR												
RS Cleanup	NR												

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
RS Assess.	NR									8.00
RS Cleanup	NR									8.00

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
PPPL	0001		PPPL02/03 \ WWTP Sludge Beds	Liquid Surface Impoundments/Holding Ponds	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	Y
PPPL	0002		PPPL04/05 \ Cooling Tower Soils	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N
PPPL	0003		PPPL07 \ CAS/RESA Bldg. Area	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N
PPPL	0004		PPPL08 \ Warehouse Bldg. Soils	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N
PPPL	0005		PPPL09 \ TFTR Soils-NE Quad.	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N
PPPL	0006		PPPL10 \ Switch/OH Capacitor Yard	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N

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Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
PPPL	0007		PPPL11 \ REML Bldg. Area	Spills and Leaks/Surface Spills	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	N
PPPL	0008		PPPL12 \ Former Annex Building Area	/	1998	1998	9/30/1998	1998	1998	9/30/1998		Y	Pending	